

THE LAND SNAIL FAMILY HYDROCENIDAE IN VANUATU
(NEW HEBRIDES ISLANDS), AND COMMENTS ON
OTHER PACIFIC ISLAND SPECIES

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ABSTRACT

Georissa obsoleta new species (Gastropoda, Prosobranchia, Archeogastropoda, Hydrocenidae) is described from Efate Island, Republic of Vanuatu. It is characterized by its minute size, obsolete sculpture, channelled suture, and conical form. It is the first record of Hydrocenidae from Vanuatu. Relationships with other Pacific species are not clear. The Hawaiian *Georissa neili* Pilsbry, 1928 is synonymized with *G. cookei* Pilsbry, 1928. *G. kauaiensis* Pilsbry, 1928 (Hawaiian Islands), *Chondrella striata* Pease, 1871 (Cook Islands), and *Cyclostoma minutissima* Sowerby, 1832 (Pitcairn Island) are based on juvenile specimens but appear to be *Georissa*.

Key words: land snails, Hydrocenidae, *Georissa obsoleta*, Pacific Islands, Vanuatu, New Hebrides Islands, Efate Island.

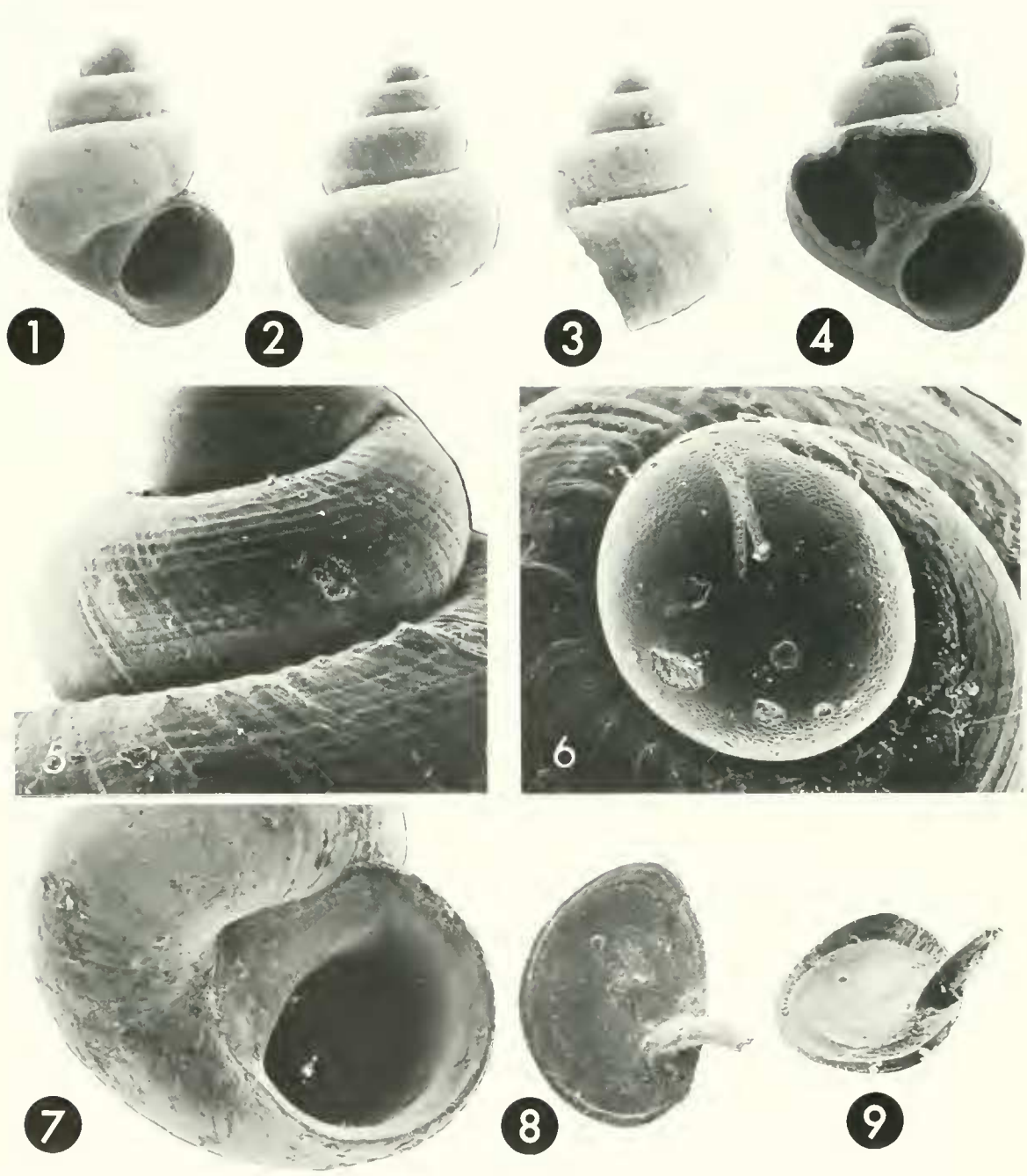
During June-August, 1984 the junior author had the opportunity to visit the Republic of Vanuatu, formerly called the New Hebrides Islands. Significant collections of land snails were made on Efate, Erromango, and Tanna. The collections are particularly interesting because of the large number of minute species that were recovered from leaf-litter samples gathered at many stations. A species of particular interest to us is described below. It is the first record of the family Hydrocenidae from Vanuatu.

Hydrocenid land snails are widely deployed on Pacific islands, Japan, New Zealand, Australia, the Indo-Australian archipelago, Southeast Asia, Madagascar, Africa, and Mediterranean Europe. They are poorly known because of their minute size and cryptic behavior, although they may be locally abundant (Thompson and Dance, 1983). Most species are confined to limestone substrates and encrust their shells with lime or mud. Live specimens appear more like minute blobs of dirt than like coiled shells. Thus, it is not surprising that this family was not reported in the two principal papers on the New Hebrides fauna (Solem, 1959, 1962). Because the new species has very poorly developed shell sculpture we name it:

Georissa obsoleta

Thompson and Huck, *new species*

Shell (Figs. 1-7): Minute, adults about 1.7-1.9 mm long, about 0.72-0.78 times as wide as high. Color varying from yellow-gray to fulvous in fresh shells. Conical with a wide rounded apex; consisting of 3.3-3.7 whorls. Apex rounded, with a large cap-shaped protoconch consisting of 1.3 whorls (Fig. 6). Protoconch sculptured with a dense mesh of minute pits. Suture between whorls of teleoconch very deeply impressed, forming a channel around middle of shell (Fig. 5). Sculpture of teleoconch consisting of very weakly developed spiral threads that form an obsolete cancellate pattern where they cross growth striations and threads (Fig. 2). Growth threads tend to be enlarged above shoulder of whorl and usually form weak denticles along second and third whorls (Fig. 5). Aperture ovate in shape, about as wide as or slightly wider than high; about 0.39-0.48 times length of shell. Parietal wall nearly straight, lying at an angle of 30-32° to axis of shell (30° in holotype); plane of aperture at 20-25° to shell axis (Fig. 3). Umbilical area with a wide shield that is indented along outer edge (Fig. 7). Parietal septum extending into shell for ¾ whorl, where upon the earlier septum has been reabsorbed (Fig. 4).



FIGS. 1-9. *Georissa obsoleta* Thompson and Huck, new species. 1, UF 50628a ($\times 31$). 2, UF 50629a ($\times 31$). 3, UF 50629a ($\times 31$). 4, UF 50627 ($\times 31$). 5, UF 50628b ($\times 164$). 6, UF 50628b ($\times 205$). 7, UF 50628a ($\times 62$). 8, inner surface of operculum ($\times 82$). 9, oblique view of operculum at 70° from base ($\times 82$).

Measurements for the holotype and five paratypes (UF 50633) selected to show variation follow:

	length	width	apert. h	apert. w	whorls
holotype	1.64	1.24	0.74	0.74	3.6
paratype	1.89	1.40	0.76	0.87	3.7
paratype	1.80	1.40	0.84	0.84	3.6
paratype	1.71	1.27	0.74	0.74	3.5
paratype	1.61	1.24	0.74	0.74	3.1

Operculum (Figs. 8, 9): Calcareous, concentric with a large subcentral nucleus. Inner surface with a long slender peg along columellar margin. Peg lying at a relatively low angle to plane of operculum; dorso-ventrally flattened; base of peg extending out to columellar edge of operculum. Inner surface of operculum flat, with a narrow raised callus around edge (Fig. 8), but not to the extent that occurs in *Chondrella parva* (Pease, 1864).

Type locality: Vanuatu, Efate Island, above Mele village along trail to the cascades, 75 m altitude. *Holotype*: UF 50631; collected 23 June 1984 by Emilye L. Huck. *Paratypes*: UF 50632 (57), UF 50633 (13 measured specimens), UF 50634 (11), UF 50627 (1 gold plated), UF 50628 (2 gold plated), UF 20629 (2 gold plated), Bernice P. Bishop Museum 207565 (6), Australian Museum C144145 (5), Rijksmuseum van Natuurlijke Historie 55724 (5); same locality as holotype.

The type series was collected from leaf-litter samples gathered at the base of a limestone knoll at the edge of a banana grove in a dense rain forest, along the cascades of a small river near Mele village. Most of the specimens are slightly weathered. A few specimens are in fresh condition and retain the natural color. The holotype is a slightly immature specimen selected because it is the freshest specimen in the lot, it shows details of sculpture and color and the operculum is retained within the aperture. The paratypes illustrated in Figs. 1, 2 (UF 50628a) are nearly identical to the holotype but are very slightly larger. The figured operculum was recovered from a paratype (UF 50632).

Discussion

Georissa obsoleta is characterized by its minute size, its moderately wide, conical form, its channelled suture, and its sculpture. These

features distinguish the species from all other known Pacific *Georissa*. Five other species are described as being smaller, but their original descriptions appear to be based on juveniles and better material has not been reported.

It is difficult to determine specific relationships because very little is known about the Pacific Hydrocenidae. Six species have been described from the northern and eastern Pacific. Three are recorded from Kauai, Hawaiian Islands, *Georissa cookei* Pilsbry, 1928, *G. neili* Pilsbry, 1928, and *G. kauaiensis* Pilsbry, 1928. The three were recovered from moss samples collected from fallen logs on a ridge between Hanalei and Wailua. The type specimens of all three are juveniles, and each is known from only one or two specimens. On the basis of variation that we have seen in other species (*see* Thompson and Dance, 1983) we suspect that *G. cookei* and *G. neili* are the same species, and we have little faith in the distinction of *G. kauaiensis*. Regardless of their specific status, their juvenile shells do not permit comparisons with other species because definitive characteristics of size, shape, sculpture and whorl development cannot be determined.

One species is known from the Cook Islands, *Chondrella striata* Pease, 1871, and one is described from Pitcairn Island, *Cyclostoma minutissima* Sowerby, 1832. Both appear to be typical *Georissa* and both are based on juvenile shells. Thus it is not possible to discuss their characteristics for the purpose of specific comparisons, other than to say that they are sculptured more heavily than is *G. obsoleta*.

Another species is recorded from the Society Islands, *Cyclostoma parva* Pease, 1864. It is much larger and smoother than *G. obsoleta*, and is placed in a separate genus, *Chondrella*, because of a heavy callused ridge around the inside margin of the operculum.

Other species are known from New Zealand, Australia, and islands to the north, but close relationships between *G. obsoleta* and these are not apparent.

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press our gratitude to all people who have assisted us in this study.

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COMMENTS ON THE DISTRIBUTION OF FRESHWATER MUSSELS (UNIONACEA) OF THE POTOMAC RIVER HEADWATERS IN WEST VIRGINIA

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ABSTRACT

This report presents data collected in 1981 and 1984 on the mussels of the upper Potomac River located within the eastern panhandle of West Virginia. My data indicate that North Branch is devoid of mussels apparently as a result of extensive strip mining; South Branch has a small but healthy mussel population. The Cacapon River and Patterson Creek, tributaries to the Potomac, also have viable populations. Eight species of mussels were found in the Potomac headwaters. Elliptio complanata, E. fisheriana and Lampsilis ventricosa were fairly common and Alasmidonta varicosa, A. undulata, Anodonta cataracta, Strophitus undulatus, and Lasmigona subviridis were uncommon throughout the system. Corbicula fluminea was found throughout the drainage with the exception of North Branch.

The freshwater mussel fauna of the Potomac River headwaters is virtually unknown. Ortman (1919) has done the only previous extensive collecting in the region, and that was com-

pleted around the turn of the twentieth century. He probably took a train to Romney, West Virginia, and then to Harpers Ferry to collect in the Potomac River over a distance that could be